UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,036	08/22/2003	Norio Shimozono	16869N-090300US	9277

			EXAMINER
20350	7590	07/14/2005	BENGZON, GREG C

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ART UNIT	PAPER NUMBER
2144	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/646,036	SHIMOZONO ET AL.
	Examiner	Art Unit
	Greg Bengzon	2144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This application has been examined. Claims 1-12 are pending. Claims 1,4,6,7,

and 11 have been amended.

Priority

The effective date of the subject matter in the claims in this application is June

18, 2003.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Terrell et

al. (US Publication 2003/0189936), hereinafter referred to as Terrell.

With respect to Claim 7, Terrell discloses a network system comprising: a

computer; a switch that is connected to said computer via a network; a first storage

device that is connected to said switch via the network; and a second storage device

that is connected to said switch via the network; (Figures 1-2, Page 6 Paragraph 69,

Page 7 Paragraph 74, Page 8 Paragraph 84) wherein said computer issues a read request for the data stored in said first storage device via the network; (Terrell – Paragraph 69) when said switch receives said read request, if the data stored in said first storage device is stored in said second storage device, (Figure 17 Item 1726) said switch converts said read request for the data stored in said first storage device into a data read request to said second storage device, and then transmits the converted data read request to said second storage device via the network, whereas if the data stored in said first storage device is not stored in said second storage device, (Figure 17 Item 1732) said switch transmits said read request to said first storage device via the network without converting said read request for the data; (Figures 17-20, Page 41 Paragraph 260-263) when receiving said data read request, said second storage device transfers, to said switch, data corresponding to the received data read request via the network; and when receiving the data, said switch transfers the received data to said computer as data transferred from said first storage device. (Page 20 Paragraph 152, Page 42 Paragraph 264)

With respect to Claim 8, Terrell discloses a network system according to claim 7, wherein said switch has information indicating whether or not data stored in said first storage device is stored in said second storage device. (Figure 17 Item 1726, 1732, Page 41 Paragraph 260-263)

With respect to Claim 9, Terrell discloses a network system according to claim 8,

wherein if the data stored in said first storage device is not stored in said second

storage device, said switch transfers the data that has been transferred from said first

storage device, to said second storage device in response to said read request for the

data, and then updates said information.(Page 15 Paragraph 119 Paragraph 124)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6,10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Terrell et al. (US Publication 2003/0189936), hereinafter referred to as Terrell, in

view of Moshfeghi et al. (US Patent 6779119), hereinafter referred to as Moshfeghi .

While Terrell substantially disclosed the features of the invention as described in

Claims 1-6,10-12, with respect to Claims 1, 4,6, and 11, Terrell does not disclose the

method and switch wherein said switch beforehand transfers data stored in said first

storage device to said second storage device via the network (as amended).

With respect to Claim 10, Terrell does not disclose the method wherein, if an amount of free storage capacity in said second storage device is not enough to store the data, said switch deletes some amount of data currently stored in said second storage device in a manner that data with the least frequency of use by said computer is deleted first.

Moshfeghi discloses performance optimization techniques that are based on a history of users' usage patterns. The system anticipates the user's requests and using a prefetcher, acts on the anticipated request, retrieves the data, stores the desired information into cache memory. (Moshfeghi - Column 4 Lines 35-65, Column 5 Lines 20-35) Conventional cache management techniques are used to optimize the cache potential. If , based on the user's usage pattern, it is determined that cached information is rarely re-accessed, the cached information is marked for deletion, thereby freeing the cache resources as required. (Moshfeghi - Column 6 Lines 1-10)

The combination of Terrell and Moshfeghi disclosed Claim 1 - a network system comprising: a computer; a switch that is connected to said computer via a network; a first storage device that is connected to said switch via the network; and a second storage device that is connected to said switch via the network; (Terrell- Figures 1-2, Paragraph 69, Paragraph 74, Paragraph 84) said computer issues a read request for the data stored in said first storage device via the network; when receiving said read request, said switch converts said read request for the data stored in said first storage

device into a data read request to said second storage device, (Terrell - Page 14

Paragraph 118, Page 15 Paragraph 119, Page 39 Paragraph 252) and then

transmits the converted data read request to said second storage device via the

network; (Terrell - Figure 17-20, Page 41 Paragraph 260-263) when receiving said

data read request, said second storage device transfers data corresponding to the

received data read request to said switch via the network; and when receiving the data,

said switch transfers the received data to said computer as data transferred from said

first storage device, (Terrell - Page 8 Paragraph 83, Page 10 Paragraph 98, Page 14

Paragraph 115-116, Page 19 Paragraph 148-151, Page 42 Paragraph 264) wherein

said switch beforehand transfers data stored in said first storage device to said second

storage device via the network (as amended). (Moshfeghi - Column 4 Lines 35-65,

Column 5 Lines 20-35)

The combination of Terrell and Moshfeghi disclosed Claim 2 - a network system

according to claim 1, further comprising a second computer that is connected to said

switch; wherein said switch transfers data stored in said first storage device to said

second storage device according to an instruction from said second computer.(Terrell -

Page 15 Paragraph 119)

The combination of Terrell and Moshfeghi disclosed Claim 3, a network system

according to claim 1, wherein: when converting the data read request to said first

storage device into the data read request to said second storage device, (Terrell - Page

14 Paragraph 118, Page 15 Paragraph 119, Page 39 Paragraph 252) said switch

converts information indicating a source of said data read request into another

information, and then transmits the converted data read request including the another

information to said second storage device; (Terrell - Figures 17-20, Page 41 Paragraph

260-263) and when receiving, from said second storage device, data corresponding to

the converted data read request, said switch converts said another information included

as a destination of the data into information used for said computer. (Terrell - Page 8

Paragraph 83, Page 10 Paragraph 98, Page 14 Paragraph 115-116)

The combination of Terrell and Moshfeghi disclosed Claim 4 -   a network

system comprising: a computer; a switch that is connected to said computer via a

network; a first storage device that is connected to said switch via the network; and a

second storage device that is connected to said switch via the network; said switch

provides said computer with a third storage device corresponding to said first storage

device, said third storage device being a virtual storage; (Terrell - Figures 1-2, Page 6

Paragraph 69, Page 7 Paragraph 74, Page 8 Paragraph 84, Page 19 Paragraph

148-151) said computer issues a data read request to said third storage device; when

receiving said data read request, said switch converts the data read request to said third

storage device into a data read request to said second storage device, and then

transmits the converted data read request to said second storage device via the

network; (Terrell - Figures 17-20, Page 41 Paragraph 260-263) when receiving said

data read request, said second storage device transfers, to said switch via the network,

data corresponding to the received data read request; and when receiving the data, said

switch transfers the received data to said computer as data transferred from said third

storage device, (Terrell - Page 19 Paragraph 148-151,Page 20 Paragraph 152, Page

42 Paragraph 264) wherein said switch beforehand transfers data stored in said first

storage device to said second storage device. (Moshfeghi - Column 4 Lines 35-65,

Column 5 Lines 20-35)

The combination of Terrell and Moshfeghi disclosed Claim 5 - a network system

according to claim 4, wherein a domain address that is the same as that of said second

storage device is assigned to said third storage device that is the virtual storage. (Terrell

- Page 20 Paragraph 152)

The combination of Terrell and Moshfeghi disclosed Claim 6 - a network system

comprising: a computer; a first storage device that is connected to said computer via a

network; and a second storage device that is connected to said computer via the

network; wherein said second storage device comprises a switch unit that is connected

to said computer and said first storage device via the network, and a storage unit that is

connected to said switch unit via an internal network; (Terrell - Figures 1-2, Page 6

Paragraph 69, Page 7 Paragraph 74, Page 8 Paragraph 84) said computer issues a

read request for the data stored in said first storage device; when receiving said read

request, said switch unit converts the read request for the data stored in said first

storage device into a data read request to said storage unit, and then transmits the

converted data read request to said storage unit <u>via the network</u>; when receiving said

data read request, said storage unit transfers, to said switch unit, data corresponding to

the received data read request; and when receiving the data, said switch unit transfers

the received data to said computer as data transferred from said first storage device,

(Terrell - Page 19 Paragraph 148-151, Page 20 Paragraph 152, Page 42 Paragraph

264) wherein said switch beforehand transfers data stored in said first storage device to

said storage unit. (Moshfeghi - Column 4 Lines 35-65, Column 5 Lines 20-35)

The combination of Terrell and Moshfeghi disclosed Claim 10 - a network system

according to claim 9, wherein said switch transfers the data that has been transferred

from said first storage device, to said second storage device, if an amount of free

storage capacity in said second storage device is not enough to store the data, said

switch deletes some amount of data currently stored in said second storage device in a

manner that data with the least frequency of use by said computer is deleted first

(Moshfeghi - Column 6 Lines 1-10), and then updates said information, (Terrell - Page

15 Paragraph 123-124, Page 16 Paragraph 126-129),

With respect to Claim 11-12, the Applicant discloses a switch for the methods

described in Claims 1-10. Claims 11-12 are rejected on the same basis as Claims 1-10.

Terrell and Moshfeghi are analogous art because they present concepts and

practices regarding performance and content management. (Terrell – Paragraph 59,

Moshfeghi – Column 2 Lines 5-10) At the time of the invention it would have been

obvious to a person of ordinary skill in the art to combine the teachings of Moshfeghi

into Terrell. The combination of Moshfeghi into Terrell would enable the system of

Terrell to 1) transferring data from one storage device to another storage device prior to

receiving a request from the user, and 2) free up storage memory based on the users'

usage pattern such that the least accessed information is deleted first. The suggested

motivation for doing so would be, as Moshfeghi suggests (Moshfeghi - Column 1 Lines

55-65), to improve user perceived and actual response time, particularly when the user

is anxious to receive the information, such as when performing repetitive tasks.

Response to Arguments

Applicant's arguments filed 06/03/2005 have been fully considered but they are

not persuasive.

The Applicant presents the following argument(s) [*in italics*]:

Terrell et al. does not teach or suggest a first storage device that is connected to

the switch via the network; and a second storage device that is connected to the switch

via the network. The virtual resource in Terrell et al. represents neither a physical entity

nor a storage device connected to the router via a network.

The Examiner respectfully disagrees with the Applicant. In Paragraph 69 Terrell

disclosed members comprising multiple subnetworks further comprising of physical

storage devices such as disks and RAID systems. In Paragraph 114 Terrell disclosed

that operations on a virtual member may be accomplished on a physical device. In

Paragraph 150 disclosed that a virtual storage resource may be mapped to any mix of

nonvirtual devices. In Paragraph 84 Terrell disclosed routers supporting communication

between processes via a network. In Paragraph 96 Terrell disclosed routers in a

network gathering information useful for any portion of the administering process. In

Paragraph 88 and Paragraph 121 Terrell disclosed routers using network port identifiers

to determine at least one physical port to which the frame may be directed. Thus Terrell

disclosed physical storage devices connected to networks. Furthermore Terrell

indicated that said routers are connected to said network, and are routing information to

first and second storage devices via network links.

The Applicant presents the following argument(s) [*in italics*]:

Terrell et al. does not disclose that if the data stored in the first storage device is

stored in the second storage device, the switch converts a read request for the data

stored in the first storage device into a data read request to the second storage device,

and then transmits the converted data read request to the second storage device.

The Examiner respectfully disagrees with the Applicant. In Paragraph 257 and

Figure 16 Terrell disclosed a virtual Read/Write I/O series, where the routing processor

redirects nonvirtual transactions by saving the source and destination identifiers and

rewriting the source and destination identifiers to form the redirected messages. Thus

Terrell disclosed a converted data read request being transmitted to a second storage device.

The Applicant presents the following argument(s) [*in italics*]:

When accessing a cache instead of an remote storage, as in Terrell et al., a read request is not converted. Terrell et al. does not alter a resource identifier when accessing the cache, but merely translates a virtual resource identifier addressed to a virtual storage into a nonvirtual resource identifier.

The Examiner disagrees with the Applicant and notes that the Applicant does not elaborate on how the read request is converted, and how said conversion by Applicant is different from the translation, resource mapping and rewriting as described by Terrell.

The Applicant presents the following argument(s) [*in italics*]:

The cache is not equivalent to the second storage device since no communication through a network of its own is involved by accessing the cache by the router. Further, a read request addressed to the cache is not an object of routing operation because the data handled by the managing processor does not involve routing process conducted by the routing processor.... The mirror function, however, is applied only to the cache 424, as described in paragraph [0119], not to a second storage device connected to the switch via the network.

The Examiner notes Terrell disclosed a router with cache storage, such that the router is able to store data transmitted from another storage device in the network.

(Terrell - Paragraph 105) Thus the router with cache storage device is equivalent to a
second storage device.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time
policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within
TWO MONTHS of the mailing date of this final action and the advisory action is not
mailed until after the end of the THREE-MONTH shortened statutory period, then the
shortened statutory period will expire on the date the advisory action is mailed, and any
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of
the advisory action. In no event, however, will the statutory period for reply expire later
than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Greg Bengzon whose telephone number is (571) 272-
3944. The examiner can normally be reached on Mon. thru Fri. 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, David Wiley can be reached on (571)272-3923. The fax phone number for
the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/gcb

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PRIMARY EXAMINER